

PATENT ABSTRACTS OF JAPAN

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(54) RARE-EARTH SINTERED MAGNET AND ITS MANUFACTURE

(57)Abstract:

PROBLEM TO BE SOLVED: To reduce the quantity of oxygen contained in a rare-earth sintered magnet by accelerating decalcification by performing sintering, heat treatment and surface treatment on a molded body manufactured by a reduction diffusion method and composed of R-T-B alloy powder after the molded body is heated in a vacuum of a specified Torr.

SOLUTION: A molded body is formed by using R-T-B alloy powder (where, the R and T respectively represent one or two or more kinds of rare-earth elements, including Y and Fe or Fe and Co) which is manufactured by a reduction diffusion method and has R₂T₁₄B as the main phase. Then the molded body is heated to a temperature between about 850° C and about 1,050° C in a vacuum of about 1×100 to 9×10^{-6} Torr and is successively sintered, heat-treated, and surface-treated. The heat treatment in the vacuum is performed, in such a way that the molded body is subjected to a first-stage vacuum heat treatment in which the molded body is heated to about 550-650° C in a vacuum of about 1×100 to about 9×10^{-6} Torr. Then the body is subjected to a second-stage vacuum heat treatment in which the molded body is heated to about 850-1,050° C in the vacuum of about 1×100 to 9×10^{-6} Torr. Therefore, the quantity of oxygen contained in the molded body can be reduced by accelerating decalcification.